6: Kirchhoff--36 [3] U-4 (no date) 1895 Formosans
116, 133, 491, 493, 501

A much used road leads from Tam-sui to the most important port of Ki-lung. Although it is hardly half the distance as the crow flies, one travels 52 km. up the winding Ki-lung River on the flat-bottomed boats mentioned above (as in the Philippines the natives call them banka) manned by two rowers who are helped by a third for the stretch with rapids. A number of small localities border the river, whose lower course is so shallow that the rising of the tide in it can be distinctly seen. But then follows a series of rapids in the mountainous region. Travel by boat ceases where the river comes to within 5 km. of Ki-lung Port; one transfers to the sedan-chair used in Formosa, where there are no carriages, and via a pass 200 m. high one goes down the steep mountainside facing the sea to the ... bay with its coal-bearing surroundings. Here, by way of exception, the entry into this natural harbor is without danger even for ships of greater draught, in spite of its being hemmed in by coral reefs, and the protection against storms in this bay amidst mountains is almost complete on all sides. Nevertheless no steamer can reach the town of Ki-lung, for the shore in front of this locality, which is situated at the back of the bay, is extremely soft, forming a morass at low tide traversed only by a narrow channel leading from the anchoring place. This softening is steadily increasing, for here as in the other Formosan ports the Chinese Government is doing nothing to prevent the junks' evil practise of dumping their ballast right in the anchorage.

6: Kirchhoff--37 U-4 (no date) 1895 Formosans
116, 487, 493

The "military road" goes on from Shinchiku in a wide curve via the inland towns of Tschang-hua and Kiă-y; in a sedan-chair the 300 km. separating Tam-sui and Tai-nan can be covered in 10 days, but it is hardly anything more than the linking of the ordinary field paths, on which the terribly creaky ox-carts bear home the rice harvest on their spokeless wheels, the fixed axle turning round also. There are no bridges at river crossings. In the rainy season this route cannot be used, for most of the stretches of road making it up turn into ditches of brackish water.

11: Haguenauer--31 T-3 (no date) 1929 Formosans
493

You have to take a lorry to go on to Kappanzan. [AN: Kakupanzan] This vehicle consists of a rattan chair, which is perched on a heavy mobile car, that runs along a narrow railroad track. The trip lasts for four hours, and yet the two Chinese who push it scarcely ever stop to rest.

12: Garnot--20 G-3 (1884-85) 1894 Formosans
116, 487, 493

In the vicinity of Kelung there is no road worthy of the name; instead you find narrow paths that are paved in some cases, and then staircases with hundreds of steps are used to cross some of the hills and ravines.

There is no need for winding roads because vehicles are unknown, and luggage is almost always transported on men's backs.

Three of these routes for pedestrians connect Kelung with its surroundings; to the east one goes to Port-Coal or Petao, to the west there is one to the Masou region and the third goes south to the Tamsui valley. Other paths which are more or less steep cut across the mountainous massif here and there but they are usually not permanent and are not kept in good condition. The winter rains make them impassible because the clay soil becomes so wet.

15: U.S. Navy --24
116, 484, 493, 511

(no date) 1944

Formosans

"Any tendency to move about within the island is held to a minimum because of limited rail and bus services, the absence of private motor vehicles, and the absence of incentives other than commercial interest. An agricultural population which has no surplus of cash finds little reason to move about from place to place. The tourist or sightseeing traffic is from Japan Proper or created by the Japanese upper class who are resident on the island. Commercial traffic along the main railway lines consists of agents travelling from centers of production to the ports and marketing centers."

15: U.S. Navy--24 [7] (no date) 1944 Formosans
116, 493, 788, 764

"Funeral ceremonies and wedding parties occasion the passage of large numbers of people into and out of the cities. Cars, rickshaws, and coolie-borne palanquins are used. The hours at which funerals are held are determined by divination. Hence it is not unusual to encounter many people moving rapidly and noisily along the road at any hour of the night. Police permission must be secured for such affairs."

497 daily. There is an increasing need for additional freight cars.[5]

The erosive soil of Formosa, frequent typhoons and floods cause damage to roadbeds, bridges, and tunnels. This is especially true for the Eastern System of the TRA; services are frequently discontinued temporarily because of the damage done the lines by floods and earthquakes.

493 The TRA seeks the modernization of equipment as well as the rehabilitation and renovation of the equipment on hand. A drive to change motive power from steam locomotives to diesel engines is underway. Diesel cars are now operating on regular runs to the four major cities on the main line, namely, Taipei, Taichung, Changhua, and Chiayi. It has been reported that two diesel cars were to begin a regular express run between Taipei and Kaohsiung in early 1956 and are expected to make the run in 5-1/2 hours.[6] The administration plans to convert all passenger trains with diesel engines. Cushioned seats, at one time provided only in "first" and "second" class cars, are now replacing wooden seats in coaches. Manual signaling devices are being replaced by automatic block signals.

III. HIGHWAY TRANSPORT

491 The highways along the west coast of the island are well developed; those on the east coast are in

5. Ibid.
6. The Asia Foundation Bulletin, Nov. 17, 1955.

poor condition. An arterial highway 404 kilometers long, linking the principal ports, runs from Keelung to Kaohsiung. It has a minimum width of 21 feet (6-1/2 meters) over most of its length and can support 9-ton trucks.[7] Gravel roads connect Suao with the arterial highway, and other roads serve the southern part of the island, passing through Taitung and ending at Chihshang. There is no highway between Chichshang and Hualien. Su-hua highway, running between Suao and Hualien, is a single lane of about 28 miles (45 kilometers), passing along the face of the sea-cliffs. Construction of this road was a major engineering feat. The road is sometimes blocked by landslides. Generally, the gravel roads in Formosa are very rough and the bridges very narrow.

Currently, surveyors are at work in preparation for the building of highways across the central mountains from Tungshih to Tachien. One branch will extend to Lotung by way of Tuchang and another will connect with the Su-hua highway through Kuanyuan and Taloko Gorge.

Formosa has a comparatively small number of motor vehicles. As of the end of 1954, there were 3,875 passenger cars (654 for public hire) to a population of about 10.4 million. Almost all of the population must depend on mass transport of one kind or another. In 1954 there were 1,774 buses on the island. The Taiwan Provincial Highway Bureau, together with seventeen private companies and five city bus services carried a total of 275 million

7. T'ai-wan Kung-lu Kung-ch'eng [Taiwan Highway Engineering], Vol. 2, No. 1, Nov.1,1953, p. 9.

499 to erect 31 spans upon the existing concrete piers built by the Japanese in 1937. The completion of the bridges provides the railroad tracks of the Taiwan Sugar Corporation, and sugar cane and other agricultural products can be transported at much less cost than heretofore.

493 The comparatively few passenger automobiles are supplemented by the bicycles, pedicabs, and motorcycles. The extensive use of bicycles for short-distance transport, particularly within a city, is necessary where bus service is infrequent and buses overcrowded. It is reported that in 1955 in the city of Taipei alone there were over 120,000 bicycles and more than 100,000 pedicabs.[9]

Pedestrians on the highways and in the streets must exercise extreme caution to avoid recklessly driven vehicles. During the first nine months of 1955, there were 1,694 accidents caused by motor vehicles, resulting in 250 deaths and 1,837 injuries. Sixty-eight per cent of the accidents was attributed to reckless drivers and 13.3 per cent to the carelessness of pedestrians.[10]

IV. SHIPPING

505 Keelung in the north and Kaohsiung on the southwest coast are the island's two most important natural harbors. All exports and imports pass through these harbors, and they handle, in addition, approximately 10 per cent of coastal shipping. Keelung is able to accomodate at a single time up to twenty-five 3,000- to 20,000-ton

9. The Central Daily News, Nov.14,1955.
10. Ibid.

48: Chen E-4 (no date) 1955 AD1 Formosa AD1

In 1942 there were 2,593 inhabitants per doctor, or 4 doctors per 10,000 inhabitants (computed from 14: Table 484).[9]

12. Transportation

A railroad from Keelung to Hsinchu was already constructed by the Machurian government. The railroad mileage increased gradually after the Japanese occupation. The main line from Keelung to Kaohsiung was completed by 1908. New branches, double tracks, and sidings were added rapidly, particularly during the 1920's. By 1930, the railroad system of the Japanese era was generally completed. As to passenger traffic, the number of passengers in 1931 was about 21 times of the number of 1901, and between 1931 and 1941 the number of passenger was almost tripled.[10] The mileage of highways was also rose rapidly after the 1920's (14: Table 449). It is interesting to note that, the number of bicycles, automobiles and trucks began to increase after 1920 (Fig. 4, Fig. 5). When bicycles were first imported, people were surprised by their high speed, and thought they were some magical thing. Now they became familiar with them, and utilized them more and more. This is a sign of the change of attitude among the people.

Before transportation was developed, different localities within an area could not exchange and trade their products, and the failure of crop in one locality would cause local famine. W. S. Thompson, who stayed some months in Nanking, China, in 1930-31, reported: at that time rice was so cheap in Nanking that many farmers were going bankrupt. At the same time people were starving by the hundred of thousands (some say by the millions) in northwest China. There was no means of transportation to let the two embarassed localities help each other, so local famine was inevitable. This situation has been very common in the past. Such prosperous and well-organized countries as England, France, and Sweden had severe local famines from time to time, even during the first half of the nineteenth century (16: pp. 67-68).

Development of transportation not only can stabilize the living of the people, but at the same time it can significantly influence the extent of the peoples' economic activity and attitudes. When transportation is poor, surplus products of one locality are useless, and people are obliged to live a self-sufficient and closed economic life. Effective transportation can change surplus products into commodities, extending the sphere of economic and social activities. Thus, a self-sufficient and closed society will change into an open, circulating society living by division of labor and exchange. In a closed society, not only are the things produced different, but customs and manners are also different. In an open and circulating society, everything will gradually become uniform through continual contact and communication. In the vital statistics of Taiwan we can see a reflection of this change. During the early years of Japanese occupation,

Note 9: As to the situation of medical facilities in 1945, see Li, Ting-yeh: op. cit. 12. As to the comparision of the situation of Taiwan with other parts of the world, cf. 27: Table 120.

Note 10: Tang, C. W.: "Railways in Taiwan". Chinese-American Economic Cooperation, Vol. 1, No. 5, 1952, Taipei, p. 66.